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ANALYSIS OF POLAND'S ENERGY SECURITY IN COMPARISON WITH THE OTHER EUROPEAN UNION COUNTRIES WITH THE USE OF SELECTED ECONOMIC INDICATORS OF ENERGY SECURITY[1]

Summary

Purpose – The aim of the article is to analyze the level of Poland's energy security in comparison with the other European Union countries.

Research method – The study was based on an index analysis with the use of selected economic indicators of the level of energy security.

Results – The highest level of energy security, taking into account selected indicators, occurs in countries such as Sweden, Finland, and Estonia, and the lowest in Malta, Belgium, and Luxembourg. As regards Poland, it is characterized by a high degree of import independence, which may indicate a high level of energy security. Poland has also a higher share of RES in final energy consumption than the EU average. However, when analyzing the energy intensity of the economy, it should be noted that Poland has one of the highest levels in this respect.

Originality/value/implications/recommendations – The literature on the subject is dominated by descriptions and characteristics of various methods of assessing the state of energy security of the country (including quantitative methods). At the same time, there is a noticeable lack of analysis of the level of energy security in Poland with the use of economic indicators. The research undertaken in the article thus deepens the analyses carried out so far and will be the basis for further considerations on the economic aspect of Poland's energy security.

Keywords: energy security, energy policy.

JEL classification: O13, Q40, Q42

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1. Introduction

Today, economic relations and the related interests of individual countries are closely linked to international politics. The economic factor, creating material foundations for the development and functioning of states, becomes an essential element of their national security. The basic component of economic security is energy security [Kraś, 2011, p. 36]. It is a strategic element of domestic and interna-tional economic policy [Świdzińska, 2017, p. 112].

Accordingly, energy security is a key component of the foreign policy of states. As the prices of energy commodities increase, end users strive to create a long-term, effective energy strategy that will enable them to meet their internal needs with the smooth supply of commodities [Misiągiewicz, 2019, p. 483]. It is important to ensure the self-sufficiency of both the entire country and the individual recipient. Notably, the more households and enterprises achieve it, the greater the country's energy security will be [Olszewski, 2012, p. 10].

Energy security is an extremely complex phenomenon. Therefore, there is no single, universally accepted definition of this concept. This is due to the different perceptions of this phenomenon by individual participants in the global energy market. The definitions can relate to various aspects of energy security and may be formulated by specialists from different fields, such as political science and economics [Molo, 2013, pp. 30–31].

According to the International Energy Agency, "energy security in practice is best viewed as a risk management problem, i.e. reducing the risk and consequences of disruptions to an acceptable level" [IEA, 2007, p. 161]. In turn, the European Commission explains the essence of energy supply security in the Green Paper of 2000. According to the Green Paper, "the European Union's long-term strategy for energy supply security must be geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking to-wards sustainable development" [European Commission, 2000, p. 2].

According to Polish legal regulations, specifically, the act – Energy Law, energy security is defined as "the state of the economy that enables the coverage of the current and prospective customer demand for fuels and energy in a technically and economically justified manner, while maintaining environmental protection requirements" [Act – Energy Law, 1997, Art. 3, point 16]. The cited definition emphasizes the key importance of supply continuity and highlights the technical, economic, and environmental dimensions of energy security [Kunikowski, 2019, p. 171].

Many researchers also attempt to define the concept of energy security precisely. In the definition of M.T. Klare, energy security is ensuring the supply of energy resources that ensure the basic needs of the state, even in a situation of crisis or international conflict [Klare, 2008, pp. 483–496]. D. Yergin stresses that "the goal of energy security is to ensure an adequate and reliable level of energy supply at reasonable prices that does not threaten the fundamental values and goals of the state" [Yergin, 2006, pp. 70–71]. Furthermore, according to the definition proposed by Azzuni and Breyer, energy security is "the feature (measure, situation, or a status) in which a related system functions optimally and sustainably in all its dimensions, freely from any threats" [Azzuni, Breyer, 2017, p. 5].

Additionally, many Polish scientists attempt to define energy security precisely. A. Chmielewski defines energy security as "multidirectional activity (policy) of the state and enterprises in the global and regional dimension, aimed at providing the domestic economy with adequate amounts of energy resources, mainly oil and gas" [Chmielewski, 2009, p. 10]. Another definition describes energy security as „a dynamic process in which global and regional trends and specific energy policy measures play an important role" [Pronińska, 2012, p. 10]. Meanwhile, K. Żukrowska defines this concept as a state in which there are no threats to energy supplies [Żukrowska, 2006, pp. 21–22].

Many problems arise when measuring energy security or capturing many of its aspects with a single numerical value. For this purpose, certain indicators describing the most important areas of energy security are used, which makes it possible to estimate its level [Hamulczuk, 2016, p. 45].

The aim of this paper is to analyze the level of Poland's energy security in comparison with the other European Union countries. The study will use economic indicators of energy security in that analysis.

The research issues of the work focus on the use of economic indicators of the level of energy security, which can be an introduction to the in-depth analyses, taking into account Poland in particular. Quantitative methods are important because, on the one hand, they enable an objective approach to the studied phenomena, and on the other hand, they are devoid of subjective, often unsupported by evidence, judgments in the analyzed area. However, it should be borne in mind that the selected indicators do not fully reflect the condition of the energy sector of a given country, as they do not take into account all components affecting the level of energy security. However, they are an adequate tool for comparing the level of energy security between countries, and at the same time they contribute to conducting in-depth research in this area.

The structure of the article is as follows. The next section presents an overview of the research conducted so far in the field of energy security level analysis in various countries. Particular attention is paid to research using economic indicators of energy security. The following section briefly presents the method and indicators used in the research. Section four presents the results of the research carried out, while section five contains the conclusion.

2. Literature review

In recent years, energy security has become an area of intense research. In the study by X. Labandeira and B. Manzano, attention is paid to the economic aspects of energy security, highlighting the difficulties in quantifying this phenomenon [Labandeira, Manzano, 2012]. However, considering the number of indicators alone, it should be noted that B.W. Ang et al. indicate over 200 indicators of energy security that can be identified in the literature on the subject [Ang, Choong et al., 2015]. One of the studies incorporating many variables in order to obtain the energy security index is the article by Scheepers et al. It proposes a composite supply/demand ratio to assess the level of energy supply security [Scheepers, Seebregts et al., 2007]. Furthermore, Augutis et al. develop an energy security assessment scale to estimate the level of energy supply security, using a number of economic, technical, and socio-political variables [Augutis, Krikstolaitis et al., 2011].

Analyses of shaping the level of energy security are also undertaken, among others, by A. Stavytskyy, G. Kharlamova et al. by estimating four-panel regressions describing the correlation of the main macroeconomic parameters with the new energy security index (NESI), which is based on consumption, production, and efficient use of energy. The analyses show that GDP growth is positively correlated with the NESI and negatively correlated with the CPI. Thus, on the one hand, economic tools can improve energy security in Europe, and on the other hand, ensuring energy security leads to lower prices and higher domestic production [Stavytskyy, Kharlamova et al., 2018].

The issue of energy security with respect to economic aspects is also the subject of analyses by Polish researchers. K. Pająk and K. Krzakiewicz conduct a comprehensive review of the current state of knowledge, highlighting methodological remarks in the field of energy security management. In the study, they pay particular attention to the characteristics of analytical tools created for research on the level of energy security (including energy and economic models) and indica-

tors enabling the measurement of the level of energy security [Pająk, Krzakiewicz, 2018]. In turn, H. Nyga-Łukaszewska analyze energy security in the context of economic competitiveness on an international scale [Nyga-Łukaszewska, 2016]. Basic correlation analysis confirms the relationship between energy security and international competitiveness. The author also analyzes the level of Poland's energy security using a simple net import model [Nyga-Łukaszewska, 2018]. The survey shows the cost-effective aspect of energy security. The results indicate that the decline in terms of trade of Poland in 2010–2014, with the assumed levels of price elasticity of demand, translated into a decline in GDP by 0.1–0.2%. Conversely, the terms of trade in Poland improved in 2015–2016.

When reviewing the research to date, it should be noted that there is no analysis of the level of energy security in Poland in comparison with the other EU countries using economic indicators. The literature is dominated by the description and characteristics of various methods of assessing the condition of energy security of the state (including quantitative methods). Therefore, the research undertaken in the course of the project implementation will constitute an in-depth analysis of the research carried out so far. Additionally, it will be the basis for further considerations on the economic aspect of energy security in Poland.

3. Methods

The analysis of the energy security level in Poland and the European Union coun-tries was carried out with the use of the data published by Eurostat. The study covered a 10-year period (2011 to 2020).

The study was based on an index analysis with the use of the following economic indicators of the energy security level:

1. Import dependency ratio:

$$R_{ID} = \frac{I - E}{C} x100\%$$

where:

I – import of a given energy resource

E – export of a given energy resource

C – domestic consumption of a given energy resource

The import dependency ratio illustrates the degree of a given country's dependence on the import of energy resources. The increase in the level of this indicator means a decrease in the level of energy security in a given country.

2. Energy intensity ratio:

$$EI = \frac{TEC}{GDP}$$

where:
TEC – total annual energy consumption in the country
GDP – annual gross domestic product in the country

Energy intensity is one of the indicators to measure the energy needs of an economy. It is calculated as units of energy per unit of GDP. Along with the increase in the level of energy intensity in a given country, the level of energy security decreases.

3. Renewable energy share index:

$$RESI = \frac{GFC_{RE}}{GFC_{T}}$$

where:
GFC_{RE} – gross final consumption of energy from renewable sources
GFC_{T} – gross final energy consumption from all sources

The ratio of the share of energy from renewable sources in the gross final consumption of energy is calculated as the quotient of the gross final consumption of energy from renewable sources and the gross final consumption of energy from all sources. The higher the level of this indicator, the greater the level of energy security in a given country. This indicator is also included in the broad group of sustainable development indicators.

4. Results

The following results were obtained from the conducted analyses. Taking into account the level of the import dependency ratio in the EU countries, the lowest levels in 2020 were recorded in countries such as Estonia (10.5%), Romania (28.2%), Sweden (33.5%), Bulgaria (37.9%), the Czech Republic (38.9%), and Finland (42%). Therefore, in these countries there are high levels of energy security with regard to the supply of energy resources. On the other hand, the lowest levels of this indicator in the corresponding year were recorded in Malta (97.6%), Cyprus (93%), Luxembourg (92.5%), Greece (81.4%), and Belgium (78.1%), which indicates a low level of energy security in this respect.

In Poland, the level of the import dependency ratio in 2020 was 42.8%, which makes it possible to classify this country among those with little dependence on

energy resources from other countries. Thus, in Poland, there is a fairly high level of energy security. It should be noted, however, that in the analyzed period, the level of this indicator increased (in 2011 the indicator was 34%), which means that the level of energy security in Poland has decreased since 2011.

Another indicator showing the level of energy security is the energy intensity ratio, which is the ratio of the total annual energy consumption in a country to the annual GDP of a given country. It is expressed in kilograms of oil equivalent (KGOE) per thousand euro. It should be emphasized that in the analyzed period the level of this indicator decreased in all of the countries covered by the study. This means that the level of energy security assessed by this indicator increased in all the EU countries. This is a positive trend as less energy is allocated per unit of GDP in a country.

According to the conducted research, the lowest levels of the energy intensity ratio in 2020 were observed in countries such as Ireland (44.2 KGOE/1000 EUR), Denmark (58.6 KGOE/1000 EUR), Luxembourg (76.4 KGOE/1000 EUR), and Italy (97.3 KGOE/1000 EUR), which proves a high level of energy security. On the other hand, the highest levels of this indicator in the corresponding year were recorded in Bulgaria (405.2 KGOE/1000 EUR), Malta (281.2 KGOE/1000 EUR), Estonia (239.8 KGOE/1000 EUR), and the Czech Republic (216.8 KGOE/1000 EUR). This means that in terms of the analyzed index, the level of energy security in these countries is the lowest. In Poland, the level of this indicator in 2020 was 212 KGOE/1000 EUR and, despite a significant reduction in comparison to 2011 (268.4 KGOE/1000 EUR), the level of Poland's energy security compared to other countries is relatively low.

The last indicator that was used in the study is RESI. It illustrates the share of gross final energy consumption from renewable sources in gross final energy consumption from all sources. Generally, the dominant view is that renewable energy sources play an important role in enhancing energy security in the European Union countries [Wiśniewski, Karaczun, 2011, p. 8].

Taking into account the share of gross final energy consumption from renewable sources in gross final energy consumption from all sources in the European Union in 2011–2020, in most countries an upward trend has been observed. The exceptions are Lithuania (decrease from 15.4% in 2011 to 14.7% in 2020) and Hungary (decrease from 13.1% in 2011 to 10.9% in 2020). Even in these cases, these are not drastic drops. In the analyzed period, other countries recorded an increase in the share of renewable energy sources.

The countries that recorded the highest shares of renewable energy in final energy consumption in 2020 include: Sweden (29.4%), Finland (27.2%), Latvia (26.6%), Portugal (19.1%), Croatia (18.3%), and Estonia (17.7%). Cyprus

observed the highest increase in the share of renewable energy sources recorded in the analyzed period (from 6.7% in 2011 to 14.8% in 2020). In these countries, the level of energy security in the analyzed period is high. Moreover, the lowest shares of renewable energy in final energy consumption in the same year were recorded in Ireland (4.4%), the Netherlands (4.7%), Luxembourg (5.4%), Belgium (6.9%), and Malta (7.2%), which proves the low level of energy security in these countries. In Poland, this share in 2020 amounted to 12.9% and was higher than the average for the European Union countries by 1.1 percentage points.

5. Conclusion

Numerous definitions of energy security indicate the complexity and multifaceted nature of this concept. The state of the research conducted so far – both in Poland and abroad – is characterized by a multiplicity of approaches and currents of thinking and a dispersion of research projects. The level of energy security can be determined with the help of numerous indicators. Selected economic indicators of energy security are used in the paper.

The aim of the article is to analyze the level of Poland's energy security in comparison with the other European Union countries. Summing up the research carried out, the highest level of energy security, taking into account selected indicators, occurs in countries such as Sweden, Finland, and Estonia, and the lowest in Malta, Belgium, and Luxembourg (although the energy intensity ratio was low). In the case of some countries, the analysis of the level of energy security with the use of selected indicators did not provide unequivocal results. For example, Germany has one of the lowest indicators of both energy intensity and the share of renewable energy sources recorded. In terms of import dependency, the country ranked 12th in 2020. Also, in the case of Ireland, in 2020 the lowest indicators of all countries were recorded: energy intensity and the share of renewable energy sources (in terms of import dependence, the country was ranked 8th).

As regards Poland, it is characterized by a high degree of import independence (7th place in 2020), which may indicate a high level of energy security. Poland has also a higher share of RES in final energy consumption than the EU average. However, when analyzing the energy intensity of the economy, it should be noted that Poland has one of the highest levels in this respect (5th place in 2020).

The research carried out in the study certainly does not exhaust the topics related to the assessment of the energy security level of individual countries. This is only an introduction to further, in-depth analyzes in this aspect, including the assessment of

various driving forces affecting the level of energy security, including: import and export of energy from a given source, domestic consumption of a given energy resource, total energy consumption in the country, GDP, renewable energy consumption.

As emphasized in the introduction to the study, the assessment of the level of energy security cannot be limited to the use of quantitative methods only due to the complexity of the examined phenomenon. In the case of Poland, one should mention here, among others, the diversification of sources of energy supplies. As noted by J. Popławska, broadly understood diversification enables effective protection of the state's interests in the energy area, while compensating for possible negative consequences of manipulation on energy commodities markets or interruptions in the supply of commodities [Popławska, 2018, p. 116]. In this respect, Poland should undoubtedly be included among the countries characterized by the stability of the energy sector, aspiring at the same time to a continuous increase in the level of energy security. It is worth mentioning here the investments implemented both in the gas sector, e.g. on the functioning of the LNG terminal in Świnoujście and the opening of the Baltic Pipe gas pipeline and the construction of a floating gas terminal in Gdańsk (FSRU terminal), as well as in the oil sector, including the extension of the oil terminal in Gdańsk. These investments create a unique opportunity to increase the energy security of both Poland and this part of Europe.

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APPENDIX

TABLE 1

Import dependency ratio in EU countries in 2011–2020 (%)

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Malta	101.3	101	104.1	97.6	97.3	101.1	103.1	97.5	97.3	97.6
Cyprus	92.3	96.7	96.1	93.1	97.3	95.8	95.9	92.5	92.8	93.1
Luxembourg	97.3	97.5	97.1	96.6	96.0	96.3	95.6	95.2	95.0	92.5
Greece	64.7	65.9	61.8	65.5	71.0	72.9	71.3	70.7	74.1	81.4
Belgium	76.5	76.6	77.8	80.1	84.1	75.9	75.3	83.0	77.6	78.1
Lithuania	78.6	77.5	75.6	74.9	75.5	74.8	72.0	73.9	75.2	74.9
Italy	81.4	79.1	76.7	75.8	77.0	77.7	77.0	76.3	77.5	73.5
Ireland	90.4	83.7	91.6	86.2	88.8	69.1	66.9	67.6	68.7	71.3
Netherlands	29.4	30.6	23.7	30.9	49.1	46.0	51.9	59.5	64.3	68.1
Spain	76.0	72.8	70.0	72.6	72.7	71.5	73.9	73.6	75.0	67.9
Portugal	77.8	79.5	73.3	70.2	76.3	72.2	78.0	75.7	73.9	65.3
Germany	61.8	61.2	62.4	61.8	62.1	63.8	64.0	63.5	67.1	63.7
Euro area	62.4	61.0	59.9	60.2	62.2	62.0	63.1	63.4	65.2	62.1
Austria	70.0	63.8	61.3	65.6	60.4	62.1	63.9	64.2	71.6	58.3
EU	56.4	54.9	53.9	54.4	56.1	56.2	57.6	58.1	60.5	57.5
Hungary	50.3	50.1	50.1	59.8	53.9	55.8	62.6	58.1	69.7	56.6
Slovakia	65.9	61.6	60.8	62.1	60.1	60.6	64.8	63.7	69.8	56.3
Croatia	49..6	49..9	47.4	44.2	48.8	48.4	53.2	52.7	56.2	53.6
Slovenia	48.3	51.8	47.5	45.2	49.3	49.0	50.8	51.2	52.1	45.8
Latvia	59.9	56.4	55.9	40.6	51.2	47.2	44.1	44.3	43.9	45.5
Denmark	-6.0	-2.8	12.3	12.2	13.1	13.5	11.3	22.7	38.7	44.9
France	49.1	48.2	48.0	46.2	45.9	47.4	48.8	46.8	47.6	44.5
Poland	34.0	31.6	26.3	29.4	29.8	30.8	38.3	43.5	45.2	42.8
Finland	53.9	47.1	49.7	49.9	47.9	46.2	43.9	44.8	42.1	42.0
Czechia	28.8	25.4	27.6	30.2	32.1	32.8	37.2	36.9	40.8	38.9
Bulgaria	36.7	36.9	38.3	35.2	36.4	38.5	39.4	36.3	38.1	37.9
Sweden	36.5	30.2	32.8	32.3	30.1	33.3	26.7	29.1	30.0	33.5
Romania	21.1	22.5	18.3	16.7	16.7	21.9	23.3	24.3	30.3	28.2
Estonia	13.6	20.6	14.5	11.6	11.2	8.1	4.6	1.2	4.8	10.5

Source: author's own elaboration based on Eurostat database.

TABLE 2

Energy intensity ratio in EU countries in 2011–2020
(in kilograms of oil equivalent per thousand euro)

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bulgaria	493.1	468.8	438.5	454.1	458.9	435.9	439.1	429.2	409.0	405.2
Malta	331.6	303.9	275.1	261.4	258.6	269.4	290.5	282.7	276.6	281.2
Estonia	376.5	348.0	380.1	345.9	295.6	351.1	328.8	305.1	242.3	239.8
Czechia	271.4	271.2	272.6	257.8	244.8	236.6	234.7	228.3	218.1	216.8
Poland	268.4	254.8	253.7	236.3	229.3	233.2	232.9	231.0	212.8	212.0
Hungary	256.3	246.7	234.0	223.7	228.2	226.1	226.5	215.3	206.0	211.1
Lithuania	251.8	244.2	222.2	213.7	215.0	217.2	218.0	214.0	203.7	199.3
Slovakia	244.6	232.3	233.6	213.9	209.8	206.9	212.0	201.8	196.5	198.4
Latvia	249.6	242.7	234.3	228.8	217.9	216.2	213.9	206.6	206.1	198.1
Romania	279.7	268.2	235.7	225.7	221.0	210.5	206.8	198.2	188.2	189.7
Croatia	203.9	196.2	193.1	184.6	187.8	183.0	183.2	174.2	170.7	175.4
Finland	184.7	180.3	179.0	183.4	174.5	175.9	172.8	173.9	168.5	161.8
Slovenia	198.4	196.5	193.7	182.0	176.8	178.4	175.7	168.5	159.7	155.3
Belgium	171.7	162.4	167.6	155.4	153.6	161.0	160.4	157.7	155.0	147.8
Greece	150.4	157.7	143.6	141.1	141.5	139.4	144.2	139.1	136.9	127.4
Portugal	137.8	135.6	137.3	137.9	140.7	138.2	139.8	132.8	129.4	125.5
Cyprus	149.3	145.4	138.8	143.5	142.4	144.8	140.6	136.6	129.8	120.5
Netherlands	147.1	147.0	143.8	135.1	134.2	132.8	129.9	124.3	120.2	119.7
EU	139.5	138.5	137.0	130.3	129.1	127.7	126.8	123.6	119.5	116.7
Spain	129.8	133.1	125.7	122.2	121.7	119.1	120.7	118.1	112.9	111.7
Sweden	136.0	136.3	132.5	127.9	117.1	120.0	120.6	118.7	114.0	108.4
Euro area	129.1	128.8	127.9	121.4	120.9	119.3	118.1	114.7	111.4	108.2
France	131.0	130.6	130.4	124.1	124.6	121.1	118.5	115.8	112.3	108.2
Austria	111.1	110.0	111.3	106.7	108.2	107.6	107.1	102.1	102.8	102.1
Germany	121.4	121.9	123.9	116.1	115.0	113.3	110.8	107.0	103.5	100.3
Italy	107.0	106.0	103.9	98.2	101.2	99.2	100.9	98.7	97.2	97.3
Luxembourg	106.7	102.4	96.6	91.6	88.6	84.6	86.3	88.0	86.0	76.4
Denmark	79.7	75.9	75.8	71.3	69.5	68.8	66.9	65.9	62.9	58.6
Ireland	82.7	83.7	79.3	73.4	61.8	63.8	57.1	53.4	51.0	44.2

Source: author's own elaboration based on Eurostat database.

TABLE 3

The share of gross final energy consumption from renewable sources in gross final energy consumption from all sources (%)

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sweden	21.7	21.9	22.5	23.3	24.0	25.0	25.8	26.0	26.2	29.4
Finland	20.0	20.6	21.1	23.1	23.4	22.5	25.9	26.4	27.3	27.2
Latvia	26.3	27.8	27.3	27.7	25.6	24.1	25.3	26.6	26.4	26.4
Portugal	15.4	14.3	14.9	17.7	17.9	17.7	17.5	17.4	17.8	19.1
Croatia	18.0	19.5	19.5	18.2	19.4	18.2	17.2	17.2	17.1	18.3
Estonia	18.1	17.1	16.8	17.4	17.8	15.0	15.5	16.0	15.7	17.7
Romania	16.2	16.9	17.1	16.9	16.4	16.8	16.4	15.8	16.2	16.4
Austria	15.9	16.5	16.4	16.4	16.7	16.4	16.2	15.7	15.9	16.4
Bulgaria	11.5	13.0	14.5	13.5	13.8	14.2	14.2	14.4	14.7	16.3
Cyprus	6.7	7.2	7.9	7.7	8.2	8.1	8.7	12.2	12.1	14.8
Lithuania	15.4	15.6	15.6	14.7	14.6	13.8	13.2	13.6	13.3	14.7
Czechia	10.4	10.8	11.6	12.4	12.3	12.3	12.0	12.4	13.4	14.2
Slovenia	13.7	13.9	15.1	13.8	14.4	13.8	13.2	13.0	13.2	14.2
Poland	8.7	8.6	9.2	9.0	9.2	8.7	8.6	12.8	12.8	12.9
Denmark	10.1	10.6	10.9	11.2	11.9	12.3	12.1	12.0	12.1	12.4
Slovakia	5.7	4.8	4.3	5.9	7.1	6.2	6.1	6.6	12.1	12.0
Greece	8.0	9.6	9.4	9.5	9.5	8.5	10.5	11.1	11.1	11.9
EU	8.9	9.6	9.6	9.7	9.9	9.8	10.3	10.8	11.1	11.8
Hungary	13.1	14.7	14.9	13.2	12.9	12.5	11.7	10.6	10.3	10.9
France	8.0	8.8	9.3	9.0	9.4	9.9	10.0	10.2	10.6	10.9
Euro area	7.8	8.6	8.6	8.6	8.8	8.7	9.4	9.7	10.0	10.5
Italy	5.6	7.4	7.5	6.9	7.5	7.2	10.0	9.6	9.7	10.3
Spain	7.0	8.0	6.6	7.2	7.5	7.2	7.5	8.0	8.3	9.0
Germany	7.7	8.2	8.2	7.9	7.8	7.6	7.7	8.2	8.3	8.9
Malta	1.8	2.2	2.6	3.2	2.9	3.0	4.9	5.4	5.8	7.2
Belgium	4.7	4.9	5.4	5.5	5.1	5.9	6.0	6.0	6.0	6.9
Luxembourg	2.4	2.5	2.8	3.5	3.9	4.2	4.6	4.6	4.3	5.4
Netherlands	2.4	2.5	2.5	3.1	3.0	2.9	3.2	3.9	4.5	4.7
Ireland	2.9	2.9	3.2	3.7	3.8	3.6	4.2	4.1	4.3	4.4

Source: author's own elaboration based on Eurostat database.